

# NEURO PRAX<sup>®</sup> MR

## Measuring and Modulating Brain Activity

for neuroscience applications



### fMRI-compatible full-band DC-EEG biofeedback system

NEURO PRAX<sup>®</sup> MR systems measures physiological activity such as EEG, EMG, and EP signals simultaneously and synchronously for all channels. Unique amplifier technology captures EEG activities from infraslow (0 - 0.3 Hz) to ultrafast (80 - 1,200 Hz) frequencies. The high dynamic range of our amplifiers and the integrated online correction of gradient and pulse artifacts make the NEURO PRAX<sup>®</sup> MR particularly suitable for measuring EEG, ECG, EMG, or GSR during functional Magnetic Resonance Imaging (fMRI).

Our full-band MR-compatible DC-EEG amplifiers are available with 8, 32 or 64 channels. They provide a wide range of optional software-based functions such as online correction of artifacts, topographical analyses, spectral and amplitude mapping, and online averaging. The NEURO PRAX<sup>®</sup> MR 8 allows to record the galvanic skin response (GSR) and the EMG.

### Areas of Application/Treatments

<b>Biofeedback clinic</b>	DC-EEG biofeedback system, quantitative EEG, cognitive evoked potentials
<b>Research in neurology</b>	fMRI and full-band DC-EEG, fMRI and EP/EMG
<b>Cognitive neuroscience and Behavioral science</b>	fMRI and EP, fMRI and GSR, facial EMG
<b>EEG biofeedback research</b>	fMRI and DC-EEGfeedback, 3D EEG feedback

## NEURO PRAX® MR Features:

- 32-channel full-band DC-EEG biofeedback system (8, 64 channels)\*
- Channel type (EEG, EMG, ECG) selectable via software
- Non-referential storage of raw data
- Online correction of gradient artifacts during fMRI by means of soft- and hardware synchronization\*\*
- Real time correction of pulse artifacts
- Suitable for polygraphy and polysomnography
- Simple and intuitive user interface
- EEG mountings and event markers freely selectable
- Patient database with medication and examination calendar, complete documentation of readings
- Topographical analyses, spectral and amplitude mapping
- Display of averaged evoked responses during fMRI-scans
- Connection to external trigger sources
- Module ACTIVE SYNC MR for high end gradient artefact correction

\* optional \*\* hardware synchronisation optional

## Options and system extensions

- module to correct EEG artifacts
- module for cognitive evoked potentials: CNV, CPT-OX, P300, ERN, and BP (not inside MRI scanner)
- feedback module system extension (additional monitor)
- NEURO PRAX® examination license from other PC
- module for online data access via Ethernet by TCP/IP
- export module for exporting measured data into other formats
- module for data access within MATLAB®/Simulink®, LabVIEW®, C/C++
- optical Trigger Module system extension for external trigger input
- Module for source localization of EEG and fMRI-EEG data
- rechargeable battery pack (not inside fMRI scanner)

## NEURO PRAX® MR Technical data

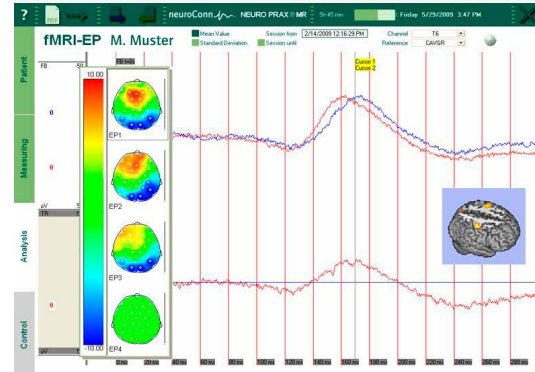
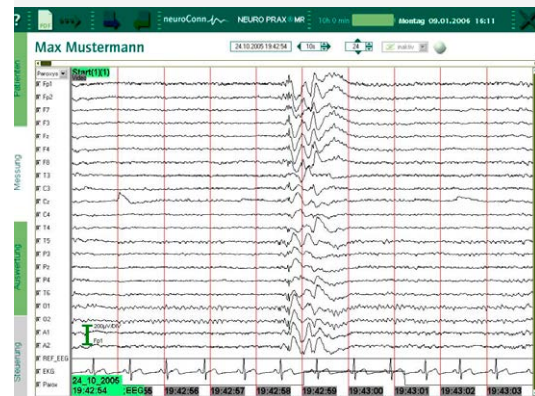
### full-band DC-EEG and BIOSIGNAL AMPLIFIER

- 32 full-band DC-channels (64, 128 channels)\*
- input impedance > 10 G
- 24-bit resolution per channel
- selectable sampling rates of 60 to 4,000 sps
- frequency range of 0 to 1,200 Hz @ 4,000 Hz sampling rate
- common mode rejection rate (CMRR) > 90 dB @ 50 Hz
- dynamic input range approx. ±175 mV
- input noise < 0.9 µV (RMS) @ 0 - 110 Hz at 250 sps
- max. power consumption 1.5 W
- continuous operation time > 8 h
- power supply via built-in rechargeable batteries
- applied part BF
- dimensions in mm: 290 x 130 x 200 (W x D x H)
- weight: 4.2 kg (incl. batteries)
- data transmission via optical fiber
- electrode input box, incl. connector cable (32, 64 channels)
- measurement of Galvanic Skin Response (GSR) during functional MRI\*\*\*

\* optional \*\*\* only available in NEURO PRAX® MR 8

### Panel-PC

- powerful Intel® Core Duo processor, min. 1 GB RAM, 500 GB hard disc
- USB 2.0, ethernet interface (LAN), min. 15" TFT color monitor, keyboard, mouse
- operating system WINDOWS® 10 (and later)
- operating voltage 100-240 V @ 60/50 Hz AC
- dimensions in mm: 420 x 365 x 170 (W x D x H)
- weight: 11.6 kg (incl. stand)



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